**PRODUCT TECHNICAL DATA**

**DESCRIPTION**
Empire Slate™ is a polymer based Class A and C roof tile designed to provide the look of natural stone slate. Empire Slate is manufactured with a state-of-the-art formulation using virgin and recycled polyolefin polymers.

Empire Slate Random-Width Blend tiles come in 6" (152 mm), 9" (229 mm) and 12" (305 mm) widths, are 18" (457 mm) long and 1/4" (6 mm) thick, and are available in fourteen (14) standard colors and unlimited custom colors.

**ADVANTAGES**
Empire Slate Random-Width Blend provides the look of natural slate with these added advantages:

- High impact resistance that provides protection from hail, falling branches, foot traffic, ice and snow damage.
- Empire Slate can be installed up to eight times faster than natural stone slate.
- The color in Empire Slate has been added during formulation providing for color throughout the product. As with all roofing products, natural weathering will occur.
- EcoStar provides warranties for Empire Slate for up to 50 years*.

**INSTALLATION**

**Temperature** – If tiles have been stored in temperatures below 45°F (7°C), they must be restored to a temperature above 45°F (7°C) before installation. Ambient temperature should be at least 34°F (1°C) and rising.

**Substrate** – Empire Slate should only be installed on a minimum of 1/2" (13 mm) plywood, minimum 7/16" (11 mm) OSB or minimum 1/8" (19 mm) tongue and groove wood decking. Empire Slate should not be applied over existing roof materials. Existing roof materials must be removed down to the deck, prior to installation.

**Slope** – Empire Slate is not recommended for slopes less than 3/12 (14°). On roofs less than 4/12 (18°) and greater than 3/12 (14°), Empire Slate must be installed with a maximum exposure of 6" (152 mm). On roofs 4/12 (18°) or greater, Empire Slate tiles may be installed with either a 6" (152 mm) or 7" (178 mm) exposure. On slopes of 6/12 (27°) or greater, the tiles can be installed at an 8° (203 mm) exposure.

**Underlayment** – Prior to installation, Glacier Guard™ underlayment should be applied to all rakes, valleys, ridges, hips, caves and any protrusions. Aqua Guard™ is then applied over the remaining deck surface. For Class A fire rated assembly, GAF VersaShield® should be used instead of Aqua Guard™ and should cover the entire roof deck, including the areas covered by Glacier Guard™.

**Fasteners** – Fasteners must be ring shank stainless steel. EcoStar Fasteners are available in either hand drive style or pneumatic coil.

**PRODUCT SPECIFICATIONS**

<table>
<thead>
<tr>
<th>PRODUCT CHARACTERISTIC</th>
<th>Length</th>
<th>Width</th>
<th>Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>18&quot; (457 mm)</td>
<td>6&quot; (152 mm), 9&quot; (229 mm), 12&quot; (305 mm)</td>
<td>1/4&quot; (6 mm)</td>
</tr>
</tbody>
</table>

**PACKAGING INFORMATION**

- Tiles per bundle: 30
- Weight per bundle: 43.0 lbs. (19.5 kg)
- Bundles per pallet: 40
- Weight per pallet: 1,720 lbs. (780 kg)
- Linear feet per bundle: 22.5 ft. (6.86 m)

**FORMULATION**

- Materials: Thermoplastic Olefin

**PHYSICAL PROPERTIES (Typical)**

<table>
<thead>
<tr>
<th>Physical Property</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Range</td>
<td>-25°F to 200°F (-32°C to 93°C)</td>
</tr>
<tr>
<td>Tensile (D-412)</td>
<td>1,500 psi (10,342 kpa)</td>
</tr>
<tr>
<td>Water Absorption (D-570)</td>
<td>0% by wt.</td>
</tr>
</tbody>
</table>

**APPLICABLE STANDARDS**

- UL Listed 790 Fire Resistance: Class A and C
- UL 2218 Impact: Class 4
- Texas Dept. of Insurance: Listed

**WARRANTIES**

EcoStar warrants this product to be free of defects in workmanship and materials at the time of shipment from EcoStar’s facility. EcoStar will at its option either supply new product or refund the purchase price of any product found to be defective hereunder.

EcoStar’s limited warranties are the only warranties extended by EcoStar with respect to its materials. There are no other warranties, including the implied warranties of merchantability and fitness for a particular purpose. EcoStar specifically disclaims liability for any incidental, consequential, or other damages, including but not limited to, loss of profits or damages to a structure or its contents, arising under any theory of law whatsoever.*

The dollar value of EcoStar’s liability and buyer’s remedy under this limited warranty shall not exceed the purchase price of the EcoStar material in question.

*See www.ecostarllc.com for available warranties.